

History of Interconnection-Wide Transmission Planning

Prior to 2001, no pro-active interconnection-wide transmission planning was done across the Western Interconnection. The predecessor to the Western Electricity Coordinating Council, the Western Systems Coordinating Council, had a “Regional Planning Process,” but it was a limited, process. Sponsors of transmission projects notified other companies of the project, and triggering a process to rate the transfer capacity of the project.¹

In May 2001, during the Western electricity crisis, Western Governors asked the Western industry and the Committee on Regional Electric Power Cooperation (CREPC) to produce a conceptual transmission plan for the interconnection in 60 days. The effort, led by Jack Davis, former president of Arizona Public Service Company (APS), and Marsha Smith, chair of CREPC, produced a [report](#) that the Governors reviewed in August 2001. The Governors accepted the report and asked the industry to institutionalize pro-active interconnection-wide transmission planning. At the time, the industry throughout the interconnection was working on the development of Regional Transmission Organizations (RTOs). A group called the Seams Steering Group-Western Interconnection (SSG-WI) was formed to work on issues at the boundaries between proposed RTOs. One of SSG-WI’s most successful efforts was the development of a pro-active, interconnection-wide transmission planning process. SSG-WI developed plans in 2003 and 2005.

RTO development efforts ended in 2005. Western Governors and companies through the ad hoc Western Assessment Group asked WECC to assume the responsibility for pro-active interconnection-wide transmission planning. The WECC Board agreed to assume this new responsibility and created the Transmission Expansion Planning Policy Committee (TEPPC). TEPPC is a diverse WECC Board-level committee. It conducted some preliminary transmission modeling runs in 2007, but began work in earnest in 2008.

Under Order 890, in 2007, FERC required transmission owners and operators to conduct regional transmission planning. Companies asked WECC to modify its transmission planning process to comply with Order 890, thus allowing companies to demonstrate to FERC that they were complying with Order 890 by participating in the WECC transmission planning process and subregional planning processes. Under Order 890, any party may request that WECC perform transmission studies. In January 2008, the Western Interconnection Regional Advisory Body (WIRAB) made one of the first study requests.² TEPPC’s [2008 annual report](#) describes the planning process and study results. As part of TEPPC’s second open season study request process, the WGA Western Renewable Energy Zone (WREZ) project requested that WECC study four very aggressive renewable energy scenarios. That study work is underway.

¹ This Regional Planning Process is still operated by WECC but is now supplemented by the work of WECC’s Transmission Expansion Planning Policy Committee.

² WIRAB asked WECC to study transmission needed to achieve a 15% reduction in carbon emissions from 2005 levels by 2017.

One sub-regional economic study³, the Rocky Mountain Area Transmission Study (RMATS), focused on a five-state region (MT, WY, CO, UT, ID) but generated interconnection-wide information. The following table summarizes the major economic expansion transmission studies.

| Study/Year | Type of study | Scenarios | Comments |
|--|---|---|---|
| WGA Conceptual Transmission Plans (2001) | Production cost | Gas and other than gas | Study done in 60 days during the Western electricity crisis |
| SSG-WI 2003 | Production cost | Coal, gas, renewables | |
| SSG-WI 2005 | Production cost | | |
| RMATS 2004 | Production cost focusing on 5 states, but considering exports from the 5-state region | Coal, gas, wind | Predecessor of Frontier line studies; the MSTI proposal; WY-CO intertie proposal; Gateway West proposal; and Colstrip upgrade study |
| WECC 2008 | Production cost | Reduced carbon emissions | Done at request of WIRAB |
| WECC 2009 | Production cost | Aggressive renewable scenarios requested by the WGA WREZ project. Related studies such as alternative locations of wind in the Northwest. | Studies underway. |

The maps below show examples of results from the SSG-WI 2003 study and the RMATS study. Production cost modeling generates vast quantities of other types of information such as flow duration curves on transmission paths, locational marginal prices, and carbon emissions.

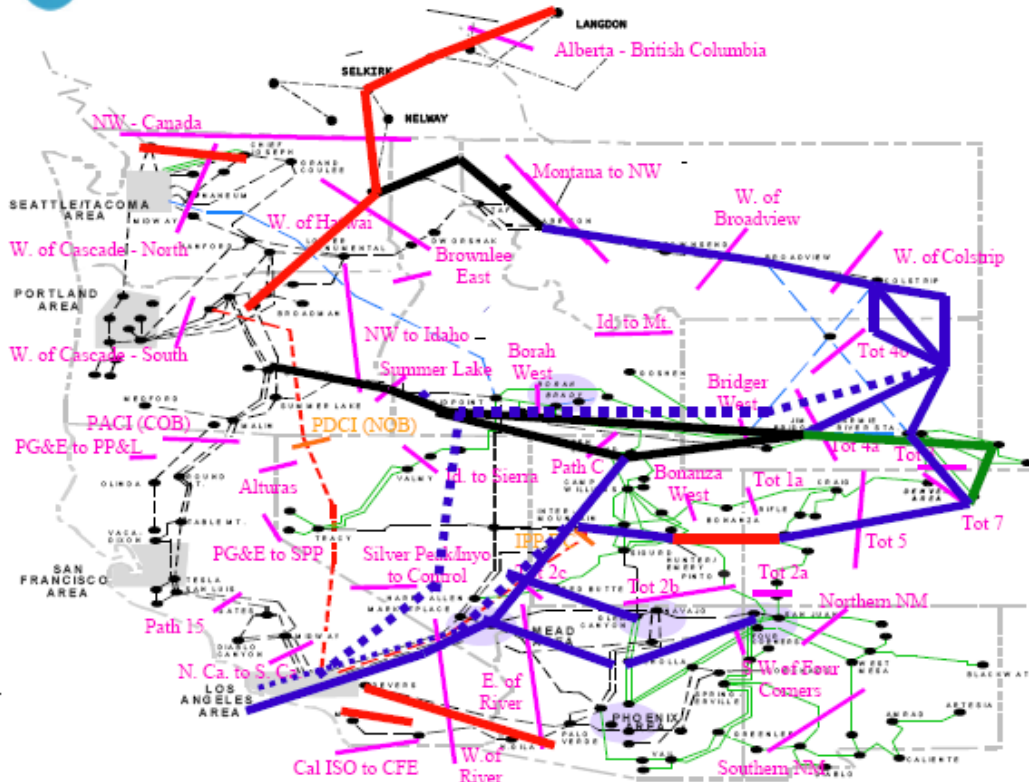
³ Most sub-regional planning studies focus on transmission expansion for reliability purposes, not the movement of lower cost generation.

Western Interconnection Transmission Additions



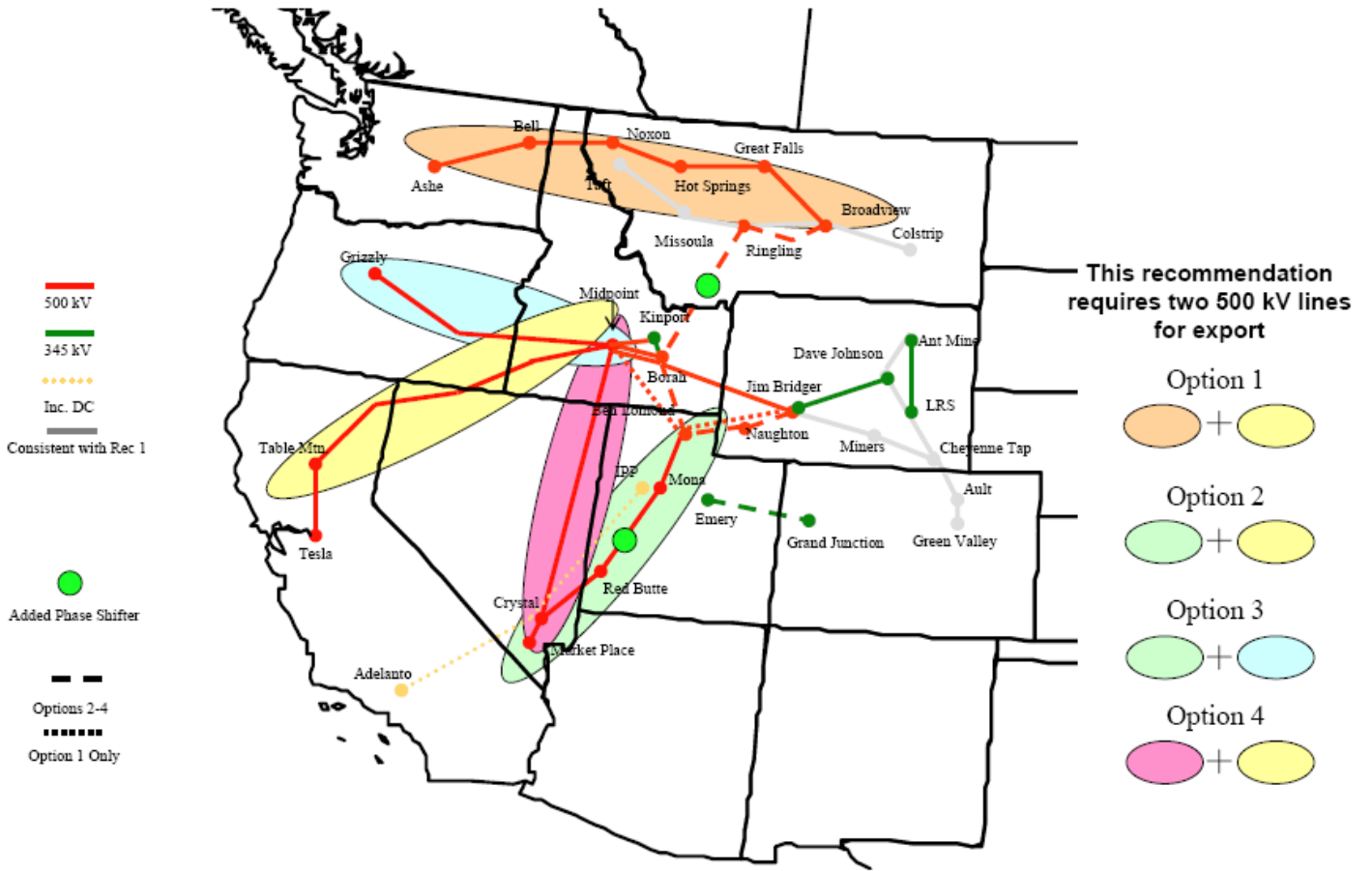
Seams Steering Group of the Western Interconnection

Western Interconnect Transmission Paths



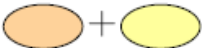
- 1 Alberta-BC
- 2 Alberta - Saskatchewan
- 3 Northwest - Canada
- 4 West of Cascades - North
- 5 West of Cascades - South
- 6 West of Hatwai
- 7 Blank
- 8 Montana to Northwest
- 9 West of Broadview
- 10 West of Colstrip
- 11 West of Crossover
- 12-13 Blank
- 14 Idaho to Northwest
- 15 Midway - Los Banos
- 16 Idaho - Sierra
- 17 Borah West
- 18 Idaho - Montana
- 19 Bridger West
- 20 Path C
- 21 Arizona to Calif
- 22 Four Corners 345/500
- 23 PG&E - SPP
- 24 PacifiCorp/PG&E 115 Intercon.
- 25 Northern - Southern Calif
- 26 Intermountain Power Project
- 27 Intermountain - Mona 345 kv
- 28 Intermountain - Gonder 230 kv
- 29 TOT 1A
- 30 TOT 2A
- 31 Pavant/Intermtn Gonder
- 32 Bonanza West
- 33 see paths 78 & 79
- 34 TOT 2C
- 35 TOT 3
- 36 TOT 3
- 37 TOT 4A
- 38 TOT 4B
- 39 TOT 5
- 40 TOT 7
- 41 Sylmar to SCE
- 42 IID - SCE
- 43 North of San Onofre
- 44 South of San Onofre
- 45 SDG&E Comision Fed. de Elect.
- 46 West of Colorado River (WOR)
- 47 Southern New Mexico (NM1)
- 48 Northern New Mexico (NM2)
- 49 East of the Colorado River
- 50 Cholla - Pinnacle Peak
- 51 Southern Navajo
- 52 Silver Peak - Control 55 kv
- 53 Billings - Yellowtail
- 54 Coronado West
- 55 Brownlee East
- 56-57 Blank
- 58 Eldorado - Mead 230 kv Lines
- 59 WALC Blythe - SCE Blythe

Transmission Expansion Extending Beyond the Rocky Mountain Region

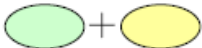


This recommendation requires two 500 kV lines for export

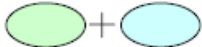
Option 1



Option 2



Option 3



Option 4

